

WHAT IS CLAIMED IS:

1. An apparatus for use in a treatment modality including an enlargement procedure to be performed within a patient, said apparatus including a catheter for being directed through internal passageways in the patient, said catheter having a proximal end and a distal end, a proximal portion adjacent to said proximal end and a distal portion adjacent to said distal end, and a first and at least a second generally parallel lumen, said first and said second lumens extending between said proximal and distal portions, and a cutting wire for performing the enlargement procedure extending through said second lumen for operating at said distal portion in response to manipulations at said proximal end, said cutting wire having a distal end attached to said catheter at the distal end of said second lumen, a portion thereof external to said catheter along a length coextensive with a portion of said distal portion of said catheter and a handle for operating said cutting wire from a point proximal of said catheter, the improvement comprising:

a rotatable coupling attaching said handle to said catheter allowing said handle to rotate relative to said proximal end of said catheter while engaging and rotating a proximal end of said cutting wire whereby said distal portion of said catheter rotates as a result of said rotation of said handle; and

a locking mechanism for locking an orientation of a distal portion of said cutting wire.

2. The apparatus of claim 1 further comprising:

a rotation lock which inhibits further rotation of said handle relative to said proximal end of said catheter.

3. The apparatus of claim 1, further comprising:

a rotation indicator configured to indicate an amount of rotation of said handle relative to said proximal end of said catheter.

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4. The apparatus of claim 3, wherein said rotation indicator comprises a visual indicator of said amount of rotation.

5. The apparatus of claim 4, wherein said visual indicator comprises an index marking and a corresponding scale marking providing an indication of said amount of rotation.

6. The apparatus of claim 3, wherein said rotation indicator comprises a device providing an audible indication in response to said rotation of said handle relative to said proximal end of said catheter.

7. The apparatus of claim 1 wherein said locking mechanism includes an insert positioned between moving parts of said apparatus to resist movement between said moving parts.

8. The apparatus of claim 1 wherein said locking mechanism includes an insert and further including a guidewire wherein said guidewire passes through said insert and said insert resists movement of said guidewire.

9. The apparatus of claim 1 including a second locking mechanism which engages said cutting wire to prevent lengthwise movement thereof.

10. The apparatus of claim 9, wherein said second locking mechanism includes evenly spaced detents in said handle body which interact with one or more pawls.

11. The apparatus of claim 1, wherein said locking mechanism includes evenly spaced detents on an active cord insert which interact with one or more detents located in a handle body to resist movement of said active cord insert with respect to said handle body.

12. A method of cutting tissue in a body passage comprising selecting a catheter having a first lumen configured for receiving a wire guide, a second lumen configured for receiving an electrosurgical cutting wire, positioning said catheter in said passage at a desired position using an endoscope, actuating the electrosurgical cutting

wire in the second lumen, the improvement comprising:

orientating said electrosurgical cutting wire by rotating a handle relative to a proximal end of said catheter; and

fixing an orientation of said electrosurgical cutting wire.

13. The method of claim 12 wherein said cutting wire is affixed to said handle, wherein said step of rotating said handle causes a rotation of a proximal end of said cutting wire whereby said cutting wire is caused to rotate within said second lumen.

14. The method of claim 13 wherein a distal end of said cutting wire is caused to rotate by a twisting of a portion of said cutting wire intermediate said proximal and said distal portions of said cutting wire.

15. The method of claim 12 further comprising:
inhibiting further rotation of said handle relative to said proximal end of said catheter by engaging a rotation lock.

16. The method of claim 12, further comprising:
indicating an amount of rotation of said handle relative to said proximal end of said catheter through the use of a rotation indicator.

17. The method of claim 16, wherein said step of indicating an amount of rotation includes a visual indication of said amount of rotation.

18. The method of claim 17, wherein said visual indication includes an index marking and a corresponding scale marking providing an indication of said amount of rotation.

19. The method of claim 16, wherein said step of indicating an amount of rotation includes an audible indicator provided by a device in response to said rotation of said handle relative to said proximal end of said catheter.

20. The method of claim 12 wherein said step of fixing said orientation of said cutting wire uses an insert to create friction between moving parts in said catheter which resists movement between said moving parts.

21. The method of claim 12 which includes the step of preventing lengthwise movement of said cutting wire.

22. The method of claim 21 wherein said step of preventing lengthwise movement of said cutting wire uses detents interacting with pawls.

23. A catheter handle comprising:
a rotatable coupling configured to allow free rotation of a proximal end of a catheter;

5 a clamping member configured to engage a proximal end of a device extending through a lumen formed in said catheter whereby rotation of said handle causes rotation of a proximal end of said device in said lumen; and

a locking mechanism for locking an orientation of a distal end of said cutting device.

24. The catheter handle of claim 23, wherein said device comprises a cutting wire extending from said proximal end of said catheter to and connecting to a distal end of said catheter.

25. The catheter handle of claim 23, further comprising:
a rotation lock engageable to inhibit a rotation of said handle with respect to said proximal end of said catheter.

26. The catheter handle of claim 23, further comprising:
a rotation indicator configured to indicate an amount of rotation of said handle relative to said proximal end of said catheter.

27. The catheter handle of claim 26, wherein said rotation indicator comprises a visual indicator of said amount of rotation.



28. The catheter handle of claim 27, wherein said visual indicator comprises an index marking and a corresponding scale marking providing an indication of said amount of rotation.

29. The catheter handle of claim 23, wherein said rotation indicator comprises a device providing an audible indication in response to said rotation of said handle relative to said proximal end of said catheter.

30. The catheter handle of claim 23 including a second locking mechanism which engages said cutting wire to prevent lengthwise movement thereof.

31. In a catheter including a shaft having a proximal end and a distal end, the improvement comprising:

a guidewire lumen carried by the shaft extending from a location proximal the distal end of the shaft to a location proximate the distal end of the shaft;

a cutting device extending from said proximal end of said catheter to a distal portion of said catheter, a distal portion of said cutting device exterior from said catheter;

first and second openings through the catheter wall into the guidewire lumen for accessing the guidewire lumen from a location exterior to the catheter shaft, said first opening being located proximal the distal end of the shaft, said second opening being located proximal said first opening, and

a locking mechanism for locking an orientation of a distal portion of said cutting device.

32. The catheter of claim 31 wherein the guidewire lumen is formed integral the shaft.

33. The catheter of claim 31, wherein the channel includes an opening extending longitudinally between the first opening and the second opening in communication with the guidewire lumen.

34. The catheter of claim 31, wherein said locking means includes an insert positioned between moving parts used to actuate said cutting device wherein said insert resists movement between said moving parts.

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35. The catheter of claim 31 wherein said locking means includes detents located in a handle of said catheter and at least one pawl located on an active cord insert, said active cord insert moves with respect to said handle and wherein said detents cooperate with said pawl to resist movement of said active cord insert.

36. The catheter of claim 31 including a second locking mechanism which engages said cutting wire to prevent lengthwise movement thereof.

37. A method of positioning a cutting device within a catheter including a shaft having a proximal end and a distal end, within a patient's lumen comprising the steps of:
providing a guidewire lumen within the catheter, extending from a location proximal the distal end of the shaft to a location proximate the distal end of the shaft;

providing a port through a sidewall of the shaft into the guidewire lumen, the port located distal of the proximal end of the shaft;

moving a guidewire through the port, relative to the shaft;

advancing the catheter over the guidewire;

actuating said cutting device so as to expose a distal portion of said cutting device exterior of said catheter; and

fixing an orientation of said cutting device.

38. A catheter including a shaft having a proximal end and a distal end, having a guidewire lumen carried by the shaft extending from a location proximal the distal end of the shaft to a location proximate the distal end of the shaft and a second lumen for a cutting wire extending from said proximal end of said catheter to a distal portion of said catheter, a distal portion of said cutting device exterior from said catheter, the improvement comprising:

a thinned exterior wall of said catheter adjacent the guidewire lumen;

a first opening into said guidewire lumen said opening being proximal said distal portion;

said cutting wire being attached to said cutting device on a first end; and

a handle attached to a second end of said cutting wire, said handle being rotatably

attached to said catheter.



39. The catheter of claim 38 further including:
a locking mechanism for inhibiting movement of said cutting device from a first orientation.

40. The catheter of claim 39 further including:
a rotation indicator configured to indicate an amount of rotation of said handle relative to a proximal end of said catheter.

41. The catheter of claim 38 including a second locking mechanism which engages said cutting wire to prevent lengthwise movement thereof.

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